



Billing Code 4310–55

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R8–ES–2013–0133]

[4500030113]

RIN 1018–AY78

Endangered and Threatened Wildlife and Plants; Remove the Modoc Sucker from the Federal List of Endangered and Threatened Wildlife

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule and 12-month petition finding; notice of availability of draft post-delisting monitoring plan.

SUMMARY We, the U.S. Fish and Wildlife Service (Service), propose to remove the Modoc

sucker (*Catostomus microps*) from the Federal List of Endangered and Threatened Wildlife.

This determination is based on a thorough review of the best available scientific and commercial information, which indicates that the threats to this species have been eliminated or reduced to the point that the species no longer meets the definition of an endangered species or a threatened species under the Endangered Species Act of 1973, as amended (Act). If finalized, the effects of this rule would be to remove the Modoc sucker from the List of Endangered and Threatened Wildlife. This proposed rule, if made final, would also remove the currently designated critical habitat for the Modoc sucker throughout its range. This document also constitutes our 12-month finding on a petition to reclassify the Modoc sucker from endangered to threatened. We are seeking information and comments from the public regarding this 12-month finding and proposed rule. In addition to the proposed rule, we are also seeking information and comments on the draft post-delisting monitoring plan.

DATES: We will accept comments received or postmarked on or before [INSERT DATE 60 DAYS AFTER DATE OF FEDERAL REGISTER PUBLICATION]. We must receive requests for public hearings, in writing, at the address shown in the **FOR FURTHER INFORMATION CONTACT** section by [INSERT DATE 45 DAYS AFTER DATE OF FEDERAL REGISTER PUBLICATION].

ADDRESSES: *Comment submission:* You may submit comments by one of the following methods:

(1) *Electronically:* Go to the Federal eRulemaking Portal:

<http://www.regulations.gov>. In the Search box, enter FWS–R8–ES–2013–0133, which is the

docket number for this rulemaking. Then, in the Search panel on the left side of the screen, under the Document Type heading, click on the Proposed Rules link to locate this document.

You may submit a comment by clicking on “Comment Now!”

(2) *By hard copy:* Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: FWS–R8–ES–2013–0133; Division of Policy and Directives Management; U.S. Fish and Wildlife Service; 4401 N. Fairfax Drive, MS 2042–PDM; Arlington, VA 22203.

We request that you send comments **only** by the methods described above. We will post all comments on <http://www.regulations.gov>. This generally means that we will post any personal information you provide us (see the **Information Requested** section below for more information).

Document availability: A copy of the Species Report referenced throughout this document can be viewed at <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=E053>, at <http://www.regulations.gov> under Docket No. FWS–R8–ES–2013–0133, or at the Klamath Falls Fish and Wildlife Office’s website at <http://www.fws.gov/klamathfallsfwo>. The draft post-delisting monitoring plan will be posted on our Endangered Species Program’s national web page (<http://endangered.fws.gov>), and the Klamath Falls Fish and Wildlife Office web page (<http://fws.gov/klamathfallsfwo>), and on the Federal eRulemaking Portal at <http://www.regulations.gov>.

FOR FURTHER INFORMATION CONTACT: Laurie Sada, Field Supervisor, U.S. Fish and

Wildlife Service, Klamath Falls Fish and Wildlife Office, 1936 California Avenue, Klamath Falls, OR 97601; by telephone 541-885-8481, or by facsimile 541-885-7837. If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800-877-8339.

SUPPLEMENTARY INFORMATION:

Information Requested

We intend any final action resulting from this proposal to be based on the best scientific and commercial data available, and be as accurate and as effective as possible. Therefore, we request comments or information from other governmental agencies, tribes, the scientific community, industry, or other interested parties concerning this proposed rule. We particularly seek comments concerning:

(1) Biological information on Modoc sucker, including additional information on its distribution, population size, and population trend;

(2) Relevant information concerning any current or likely future threats (or lack thereof) to Modoc sucker, including the extent and adequacy of Federal and State protection and management that would be provided to Modoc sucker as a delisted species;

(3) Current or planned activities within the range of Modoc sucker and their possible impacts to the species;

(4) Regional climate change models and whether they are reliable and credible to use in assessing the effects of climate change on Modoc sucker and its habitat;

(5) Our draft post-delisting monitoring plan. We request information regarding how best to conduct post-delisting monitoring, should the proposed delisting lead to a final delisting rule (see **Post-Delisting Monitoring Plan Overview** section below, which briefly outlines the goals of the draft plan that is available for public comment concurrent with publication of this proposed rule). Such information might include suggestions regarding the monitoring focus, procedures for determining site occupancy and abundance, or for monitoring threats and recruitment over the course of at least 5 years.

Please include sufficient information with your submission (such as scientific journal articles or other publications) to allow us to verify any scientific or commercial information you include. Please note that submissions merely stating support for or opposition to the action under consideration without providing supporting information, although noted, will not be considered in making a determination, as section 4(b)(1)(A) of the Act directs that determinations as to whether any species is an endangered or threatened species must be made “solely on the basis of the best scientific and commercial data available.”

You may submit your comments and materials concerning this proposed rule by one of the methods listed in **ADDRESSES**. We request that you send comments only by the methods described in **ADDRESSES**. If you submit information via <http://www.regulations.gov>, your

entire submission—including any personal identifying information—will be posted on the Web site. If your submission is made via a hardcopy that includes personal identifying information, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so. We will post all hardcopy submissions on *<http://www.regulations.gov>*.

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection on *<http://www.regulations.gov>*, or by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, Klamath Falls Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

Public Hearings

Section 4(b)(5) of the Act provides for one or more public hearings on this proposal, if requested. We must receive your request within 45 days after the date of this **Federal Register** publication. Send your request to the address shown in **FOR FURTHER INFORMATION CONTACT**. We will schedule public hearings on this proposal, if any are requested, and announce the dates, times, and places of those hearings, as well as how to obtain reasonable accommodations, in the **Federal Register** and local newspapers at least 15 days before the hearing.

Previous Federal Action

On January 31, 1984, we proposed to list the Modoc sucker as an endangered species and designate critical habitat under the Act based on threats from habitat degradation and loss due to activities (such as overgrazing by cattle) that cause erosion and siltation (49 FR 3892). These activities and resulting erosion were thought to have eliminated natural barriers separating Modoc suckers and the Sacramento suckers (*Catostomus occidentalis*), allowing hybridization and a loss of genetic integrity of Modoc sucker. We published a final rule listing Modoc sucker as an endangered species and designating critical habitat in the **Federal Register** on June 11, 1985 (50 FR 24526). The final rule also included predation by the nonnative brown trout (*Salmo trutta*) as a threat to Modoc sucker.

Under the Act, we maintain the Lists of Endangered and Threatened Wildlife and Plants in title 50 of the Code of Federal Regulations (CFR) at 50 CFR 17.11 (for animals) and 17.12 (for plants) (Lists). We amend the Lists by publishing final rules in the **Federal Register**. Section 4(c)(2)(A) of the Act requires that we conduct a review of listed species at least once every 5 years. Section 4(c)(2)(B) requires that we determine: (1) Whether a species no longer meets the definition of endangered or threatened and should be removed from the Lists (delisted), (2) whether a species listed as endangered more properly meets the definition of threatened and should be reclassified to threatened (downlisted), or (3) whether a species listed as threatened more properly meets the definition of endangered and should be reclassified to endangered (uplisted). In accordance with 50 CFR 424.11(d), using the best scientific and commercial data available, we will consider a species for delisting only if the data substantiate that the species is neither endangered nor threatened for one or more of the following reasons:

(1) The species is considered extinct; (2) the species is considered recovered; or (3) the original data available when the species was listed, or the interpretation of such data, were in error.

We published a notice announcing the initiation of a review of the status of Modoc sucker under section 4(c)(2) of the Act on March 22, 2006 (71 FR 14538). We notified the public of completion of the 5-year review on May 21, 2010 (75 FR 28636). The 5-year review, completed on August 17, 2009 (Service 2009), resulted in a recommendation to change the status of the species from endangered to threatened. A copy of the 2009 5-year review for Modoc sucker is available on the Service's Environmental Conservation Online System (http://ecos.fws.gov/docs/five_year_review/doc2546.pdf).

On December 21, 2011, we received a petition dated December 19, 2011, from the Pacific Legal Foundation, requesting the Service to reclassify the Modoc sucker from endangered to threatened. The petition was based on the analysis and recommendations contained in the most recent 5-year review. On June 4, 2012 (77 FR 32922), we published in the **Federal Register** a 90-day finding for the 2011 petition to reclassify the species. In our 90-day finding, we determined the 2011 petition provided substantial information indicating the petitioned actions may be warranted, and we initiated a status review for Modoc sucker. This proposed rule to remove the Modoc sucker from the Federal List of Endangered and Threatened Wildlife also constitutes the 12-month finding for the species.

Background

A completed scientific analysis is presented in detail in the Modoc Sucker Species Report (Service 2013, entire), which is available at <http://www.regulations.gov> at Docket Number FWS–R8–ES–2013–0133. The Species Report was prepared by Service biologists to provide thorough discussion of the species ecology, biological needs, and analysis of the threats that may be impacting the species. The Species Report includes discussion of the following: taxonomy and species description, habitat, biology, distribution and abundance, summary of factors affecting the species, and recovery. This detailed information is summarized in the following paragraphs of this Background section, the Recovery and Recovery Plan Implementation section, and the Summary of Factors Affecting the Species section.

The Modoc sucker is a small species of fish in the family Catostomidae. Individuals measure 2.8 to 3.3 inches (70 to 85 millimeters) in length at full maturity, with few adults exceeding 6.3 to 7.1 in (160 to 180 mm). Modoc suckers are opportunistic feeders with diets consisting of algae, small benthic invertebrates, and detritus.

Modoc sucker are primarily found in relatively small (second to fourth order), perennial and intermittent streams. They occupy an intermediate zone between the high-gradient and higher-elevation, coldwater trout zone and the low-gradient and low-elevation, warm-water fish zone. The pool habitat occupied by Modoc suckers generally includes fine sediments to small cobble bottoms, substantial detritus, and abundant cover. Spawning habitat appears to include gravel substrates in the relatively low-energy, flowing portions of pools or the protected area downstream of rocks (Reid 2008a). During low summer flows, pools inhabited by Modoc suckers can become isolated, which eliminates interaction of suckers within and among streams.

Cover can be provided by overhanging banks, larger rocks, woody debris, and aquatic rooted vegetation or filamentous algae. Larvae occupy shallow vegetated margins; juveniles tend to remain free-swimming in the shallows of large pools, particularly near vegetated areas; and larger juveniles and adults remain mostly on, or close to, the bottom (Martin 1972; Moyle and Marciochi 1975; Moyle 2002).

At the time of listing, the species was known to occupy seven streams in the Turner Creek (Turner Creek, Washington Creek, and Hulbert Creek) and Ash Creek (Johnson Creek, Rush Creek, Dutch Flat Creek, and Ash Creek) sub-basins of the Pit River drainage in northeastern California. However, three of those streams (Rush Creek, Dutch Flat Creek, and Ash Creek) and a fourth (Willow Creek) in the Ash Creek sub-basin were presumed lost due to hybridization with Sacramento suckers (*Catostomus occidentalis*). It is now recognized that the historical distribution also included one additional stream (Garden Gulch Creek) in the Turner Creek sub-basin and three additional streams in the Goose Lake sub-basin (Thomas Creek, an unnamed tributary to Thomas Creek, and Cox Creek) in southern Oregon, a disjoined, upstream sub-basin of the Pit River. Also, a population has been established in Coffee Mill Creek in the Turner Creek sub-basin—a stream not known to have been occupied at the time of listing—as a result of California Department of Fish and Wildlife transplanting efforts.

The current known distribution of Modoc sucker includes an estimated 42.5 miles (68.4 kilometers) of occupied habitat in 12 streams within 3 sub-basins, compared to an estimated distribution of 12.9 miles (20.8 kilometers) of occupied habitat in 7 seven streams within 2 sub-basins at the time of listing. Although population trend data is not available because survey

methods have varied among years, surveys indicate that Modoc sucker populations still occur in all streams where Modoc sucker populations were known to occur historically. Surveys also indicate that Modoc suckers appear to occupy nearly all available suitable habitat within the streams where they occur in the Turner Creek, Ash Creek, and Goose Lake sub-basins. Land ownership throughout the species' range is 51 percent public lands (primarily the Modoc National Forest in northeastern California and the Fremont-Winema National Forests in southern Oregon), 48 percent private lands, and 1 percent State land.

For a detailed discussion of Modoc sucker taxonomy and species description, habitat, biology, and distribution and abundance, please see the “Background” section of the Species Report, which includes subsections on “taxonomy and species description”, “habitat”, “biology”, and “distribution and abundance” (Service 2013, pp. 5–23) .

Recovery and Recovery Plan Implementation

Section 4(f) of the Act directs us to develop and implement recovery plans for the conservation and survival of endangered and threatened species unless we determine that such a plan will not promote the conservation of the species. Under section 4(f)(1)(B)(ii), recovery plans must, to the maximum extent practicable, include: “Objective, measurable criteria which, when met, would result in a determination, in accordance with the provisions of [section 4 of the Act], that the species be removed from the list.” However, revisions to the list (adding, removing, or reclassifying a species) must reflect determinations made in accordance with sections 4(a)(1) and 4(b) of the Act. Section 4(a)(1) requires that the Secretary determine

whether a species is endangered or threatened (or not) because of one or more of five threat factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or human-made factors affecting its continued existence. Section 4(b) of the Act requires that the determination be made “solely on the basis of the best scientific and commercial data available.” Therefore, recovery criteria should indicate when a species is no longer an endangered species or threatened species under the five statutory factors.

Thus, while recovery plans provide important guidance to the Service, States, and other partners on methods of minimizing threats to listed species and measurable objectives against which to measure progress towards recovery, they are not regulatory documents and cannot substitute for the determinations and promulgation of regulations required under section 4(a)(1) of the Act. A decision to revise the status of or remove a species from the Federal List of Endangered and Threatened Plants (50 CFR 17.12) is ultimately based on an analysis of the best scientific and commercial data then available to determine whether a species is no longer an endangered species or a threatened species, regardless of whether that information differs from the recovery plan.

At the time of listing, the Service, the California Department of Fish and Wildlife (CDFW), and the U.S. Forest Service (USFS) were developing an “Action Plan for the Recovery of the Modoc sucker” (Action Plan). The April 27, 1983, revision of this Action Plan was formally signed by all participants in 1984 (Service 1984). We determined that the Action

Plan and its 1989 revisions (Service 1984, 1989) adequately fulfilled the requirements of a recovery plan, and in a 1992 memorandum from the Regional Director (Region 1) to the Service's Director, we adopted it as the Recovery Plan for the Modoc sucker (Service 1992) and determined we would not prepare a separate recovery plan pursuant to section 4(f) of the Act.

The Recovery Plan included downlisting and delisting objectives (considered to be equivalent to criteria). Below, we outline the objectives to reclassify the Modoc sucker from endangered to threatened and the objectives to remove Modoc sucker from the List of Endangered and Threatened Wildlife, and we discuss progress towards meeting the objectives.

Downlisting objective 1: Maintain the integrity of extant habitats and prevent the invasion of Sacramento suckers into isolated stream reaches of the Turner-Hulbert-Washington Creek system and upper Johnson Creek. The intent of meeting this objective was to halt the threat of further loss and degradation of habitat (Factor A) and to address the threat of genetic introgression from hybridization with Sacramento sucker (Factor E).

Downlisting objective 2: Restore and maintain the quality of aquatic habitat conditions within these watersheds and thereby increase their carrying capacity for Modoc suckers. The intent of this objective was to further address habitat loss and degradation (Factor A) through active restoration, with the ultimate goal to allow the habitat to support an increase in population numbers. These efforts would improve the resiliency of the species (ability to withstand and recover from stochastic events, such as drought).

Downlisting objective 3: Secure populations of Modoc sucker have been maintained in these creeks for 3 consecutive years. The intent of this objective was to monitor Modoc sucker populations to ensure recruitment had occurred and is based on the life history of Modoc suckers, in which individuals mature at age 2+ years.

Since the time of listing, actions have been taken to maintain or improve Modoc sucker habitat within Turner Creek, Hulbert Creek, Washington Creek, and Johnson Creek as it relates to downlisting objectives 1 and 2. The Service and partners have implemented projects and management that maintain the integrity of extant habitat (downlisting objective 1) and restore and maintain the quality of habitat (downlisting objective 2) to provide effective stabilization of stream banks, fencing to exclude livestock grazing in riparian areas, restoration of riparian vegetation, and increased instream habitat. On public lands, 1.5 miles of Washington Creek, 0.2 mi of Hulbert Creek, 0.5 mi of Coffee Mill Creek, and approximately 1.5 mi of Turner Creek have been fenced to protect riparian habitat (Reid 2008a, p. 85; M. Yamagiwa, USFS, personal communication). Additionally, since Modoc sucker was listed in 1985, fencing has been constructed to exclude cattle on Rush Creek and Johnson Creek below Higgins Flat (Modoc National Forest). Fencing led to immediately protecting extant habitat (immediate, near term), and allowed habitat to recover. This improved the quality and carrying capacity in the long term, thus addressing downlisting objectives 1 and 2. Extensive landowner outreach by the Service, USFS, and State agencies, and improved livestock grazing management practices in Modoc and Lassen Counties have also resulted in improved protection of riparian corridors on private lands in the Turner and Ash Creek sub-basins. Protection of riparian habitat by excluding cattle and by improving livestock grazing management practices on both public and private lands has resulted

in improved habitat conditions along these streams as a result of reduced erosion and improved vegetative and hydrologic characteristics (Reid 2008a, pp. 41, 85–86).

Active habitat restoration (downlisting objective 2) has been implemented in many locations throughout the species range since the species was listed. Restoration on the Modoc National Forest has led to improved habitat conditions in riparian areas along many of the streams occupied by Modoc suckers. Willows have been planted along portions of streams occupied by Modoc suckers in the Turner Creek and Ash Creek sub-basins to stabilize streambanks and provide shading and cover (Reid 2008a, pp. 85–86; USFS 2008, p. 16). As a result of riparian habitat improvements and improved livestock grazing management practices, channel widths have narrowed and created deeper habitat preferred by Modoc suckers (USFS 2008, p. 16). Other habitat restoration activities include juniper revetment (the use of cut juniper trees to stabilize streambanks), creation and expansion of pool habitat, placement of boulders within streams to provide cover and shade, and restoration of channel headcuts (areas of deep erosion) to prevent further downcutting of channels (Reid 2008a, pp. 85–86; USFS 2008, p. 16).

Habitat conditions in designated critical habitat and other occupied streams have steadily improved since listing and have sustained populations of Modoc suckers for at least 25 years, although recent habitat surveys indicate erosion and sedimentation continue to be a problem along lower Turner Creek. However, this degraded reach amounts to 2.4 percent (1.01 mi/42.5 mi) of the total length of streams occupied by Modoc sucker. Land management practices employed on public and private lands since the early 1980s are expected to continue, or improve, thereby maintaining stable to upward habitat trends. Thus, we believe the integrity of extant

habitat has been maintained (part of downlisting objective 1) and the quality of habitat has been restored and maintained through restoration efforts (downlisting objective 2), and we conclude that these portions of the downlisting objectives have been met.

While part of downlisting objective 1 was to prevent invasion of Sacramento sucker, further research into the magnitude and consequences of genetic introgression with Sacramento suckers has led us to conclude that this part of the objective is no longer relevant. Observed levels of genetic introgression by Sacramento suckers in streams dominated by Modoc suckers are low, even when there are no physical barriers between the two species (Topinka 2006, pp. 64–65). This suggests that either ecological differences, selective pressures, or other natural reproductive-isolating mechanisms are sufficient to maintain the integrity of the species, even after more than a century of habitat alteration by human activities. Currently, only Ash Creek exhibits a considerable degree of introgression. Scientists who have studied suckers in western North America consider that, throughout their evolutionary history, hybridization among sympatric native fishes is not unusual and may actually provide an adaptive advantage (Dowling and Secor 1997, pp. 612–613; Dowling 2005, p. 10; Topinka 2006, p. 73; Tranah and May 2006, p. 313). Reexamination of information on natural barriers, morphological characters, and new genetic information that were unavailable at the time of listing indicate that hybridization is not a threat to the Modoc sucker and may be part of its natural evolutionary history. Thus, because of the new information that has become available since the time of listing, we believe this portion of the downlisting criterion, to prevent the invasion of Sacramento suckers, is obsolete and no longer needs to be met.

Several estimates of population size of Modoc suckers in Turner Creek, Hulbert Creek, Washington Creek, and Johnson Creek have been completed since the 1970s, which found that Modoc sucker populations have been maintained in the Turner-Hulbert-Washington Creek system and upper Johnson Creek for 3 consecutive years (downlisting objective 3). Modoc suckers appear broadly distributed throughout suitable habitat in these streams. Although the observations during each survey may not be directly comparable due to differences in sampling methods, there does not appear to be any major changes in observations of these stream populations over time. Observations of Modoc suckers in Hulbert Creek and Johnson Creek prior to 2008 appear to be greater than observations made in 2008 and 2012. However, this may be explained by differences in survey methods, inclusion of young-of-the-year suckers in earlier counts, and the fact that some numbers reported are population estimates rather than counts on individuals. Although population monitoring has not been conducted on an annual basis, sucker surveys conducted in 2008 and 2012 show that Modoc sucker populations have been maintained, and are still well established, in Turner Creek, Washington Creek, Hulbert Creek, and Johnson Creek—as well as each of the other streams known to be occupied at the time of listing—more than 25 years after listing. Thus, we believe that populations of Modoc sucker have been maintained (remained stable), demonstrating successful recruitment given that individuals mature at 2+ years, and that downlisting objective 3 has been met.

Delisting objective 1: The remaining suitable, but presently unoccupied, stream reaches within Turner-Hulbert Creek-Washington Creek and Rush-Johnson Creek drainages must be renovated and restored to Modoc sucker. The intent of this objective was to further address habitat loss and degradation (Factor A) through active restoration. Once occupied, these stream

reaches would demonstrate that the habitat is restored and has expanded. This restoration will allow the habitat to support an increase in population numbers, improving redundancy (having multiple populations that provide security from the risk of extinction of the species given the low probability that all populations will be negatively affected by a single catastrophic event) and resiliency (ability to withstand and recover from stochastic events, such as drought) of the species.

Delisting objective 2: Secure populations of Modoc suckers must be reestablished in at least two other streams outside of the above drainages, but within the historical range. The intent of this objective was to increase both habitat available and the number of populations, thereby increasing redundancy of the Modoc sucker populations.

Delisting objective 3: All populations must have sustained themselves through a climactic cycle that includes drought and flood events. This objective was intended to indicate that Modoc suckers have responded positively to habitat protection and restoration and have a sufficient number of populations and individuals to withstand and recover from environmental variability and stochastic events.

At the time of listing, it was estimated that Modoc suckers occupied 2.0 mi (3.2 km) of habitat in Turner Creek, 0.8 mi (1.3 km) of habitat in Hulbert Creek, 0.5 mi (0.8 km) of habitat in Washington Creek, 4.6 mi (7.4 km) in Rush Creek, and 1.2 mi (1.9 km) of habitat in Johnson Creek (Reid 2008a, p. 25). Since the time of listing, Reid (2008a, p. 25) estimated that there was 5.5 mi (8.9 km) of available habitat in Turner Creek, 3.0 mi (4.8 km) in Hulbert Creek, 4.1 mi

(6.6 km) in Washington Creek, 4.6 mi (7.4 km) in Rush Creek, and 2.7 mi (4.3 km) in Johnson Creek. Habitat conditions along Turner Creek, Hulbert Creek, Washington Creek, and Johnson Creek have improved since the time of listing. Modoc suckers currently occupy all available habitats within Turner Creek, Hulbert Creek, Rush Creek, and Johnson Creek; Modoc suckers occupy 3.4 mi (5.5 km) of the available habitat in Washington Creek (Reid 2008a, p. 25). Therefore, we believe delisting objective 1 has been met.

The Recovery Plan stated that additional populations were needed to provide population redundancy (delisting objective 2). New information indicates the presence of Modoc sucker populations in four streams that were not known to be occupied at the time of listing (Garden Gulch Creek in the Turner Creek sub-basin and Thomas Creek, an unnamed tributary to Thomas Creek, and Cox Creek in the Goose Lake sub-basin). In addition, a population of Modoc sucker has been established as a result of transplanting in Coffee Mill Creek in the Turner Creek sub-basin. In 1987, CDFW transplanted Modoc suckers from Washington Creek to Coffee Mill Creek to establish an additional population in the Turner Creek sub-basin (CDFW 1986, p. 11). Modoc suckers appear to be well established and relatively abundant; spawning adult and juvenile suckers have been consistently observed there during visual surveys (Reid 2009, p. 25). Therefore, we believe that the intent of delisting objective 2 has been met by the discovery of Modoc sucker populations in additional locations and the establishment of one population.

The northwestern corner of the Great Basin where the Modoc sucker occurs is naturally subject to extended droughts, during which even the larger water bodies such as Goose Lake have dried up (Laird 1971, pp. 57–58). Regional droughts have occurred every 10 to 20 years in

the last century (Reid 2008, pp. 43–44). Collections of Modoc suckers from Rush Creek and Thomas Creek near the end of the “dustbowl” drought of the 1920s to 1930s (Hubbs 1934, p. 1; Reid 2008a, p. 79) indicate that the species was able to persist in those streams even through a prolonged and severe drought. Modoc suckers have persisted throughout the species’ historical range since the time it was listed in 1985, even though the region has experienced several pronounced droughts as well as heavy-precipitation, high-water years (for example, 2011), indicating that the species is at least somewhat resilient to weather and hydrologic fluctuations. Therefore, we believe delisting objective 3 has been met.

The Recovery Plan was based on the best scientific and commercial information available at the time. In evaluating the extent to which recovery objectives have been met, we must also assess new information that has become available since the species was listed and the recovery action plan prepared. As noted above, research and new information since the time of listing and the recovery action plan indicate that hybridization and introgression with Sacramento sucker is not a substantial threat to Modoc suckers. Additionally, Modoc suckers were found occupying areas they were not known to occupy at the time of listing. This new information alters the extent to which the recovery objectives related to hybridization and establishing new populations need to be met. In the case of hybridization and genetic introgression, we found that objective no longer relevant given the lack of threat to the species. With regard to the objective to establish new populations, we found that the discovery of additional populations substantially met the intent of the objective to provide for population redundancy so that reestablishing two additional populations was no longer needed.

Additionally, we must assess whether a recovery plan adequately addresses all the factors affecting the species. The recovery objectives did not directly address predation by brown trout and other nonnative fish or the point at which that threat would be ameliorated, although actions were included. Since the time of listing, additional predatory nonnative fish have been recorded in streams containing Modoc suckers. Actions to address nonnative predatory species and an assessment of their impact are discussed below. While not specific to predatory nonnative fish, attainment of delisting objective 3, indicating that Modoc sucker populations have sustained themselves since listing in 1985, provides some indication that nonnative predatory fish are no longer a serious threat to the species' persistence. Climate change is an additional threat identified since listing and preparation of the Recovery Plan. All threats, including those identified since listing and preparation of the Recovery Plan are further discussed below. Based on our analysis of the best available information, we conclude that the downlisting and delisting objectives have been substantially met. Additional threats not directly addressed in the recovery objectives are discussed below. Additional information on recovery and recovery plan implementation are described in the "Recovery" section of the Species Report (Service 2013, pp. 58–65).

Summary of Factors Affecting the Species

Section 4 of the Act and its implementing regulations (50 CFR part 424) set forth the procedures for listing species, reclassifying species, or removing species from listed status. "Species" is defined by the Act as including any species or subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which

interbreeds when mature (16 U.S.C. 1532(16)). A species may be determined to be an endangered or threatened species because of any one or a combination of the five factors described in section 4(a)(1) of the Act: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or human-made factors affecting its continued existence. A species may be reclassified on the same basis.

A recovered species is one that no longer meets the Act's definition of threatened or endangered. Determining whether a species is recovered requires consideration of whether the species is endangered or threatened because of the same five categories of threats specified in section 4(a)(1) of the Act. For species that are already listed as endangered or threatened, this analysis of threats is an evaluation of both the threats currently facing the species and the threats that are reasonably likely to affect the species in the foreseeable future following the delisting or downlisting and the removal or reduction of the Act's protections.

A species is an "endangered species" for purposes of the Act if it is in danger of extinction throughout all or a significant portion of its range and is a "threatened species" if it is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The Act does not define the term "foreseeable future." For the purposes of this rule, we define the "foreseeable future" to be the extent to which, given the amount and substance of available data, we can anticipate events or effects, or reliably extrapolate threat trends, such that we reasonably believe that reliable predictions can be made

concerning the future as it relates to the status of Modoc sucker. Specifically, for Modoc sucker, we consider two factors: the management of threats and the response of the species to management. First, as described below, the threats to the species have been successfully ameliorated, largely due to management plans that are currently in place and expected to stay in place, and that are expected to successfully continue to control potential threats (USFS 1989, entire; USFS 1991, entire). Management plans that consider natural resources are required by law for all Federal lands on which Modoc sucker occurs, which encompasses greater than 50 percent of the species' range. Management plans are required to be in effect at all times and to be in compliance with various Federal regulations. Efforts to promote conservation of Modoc sucker habitat on private lands have been successful and are expected to continue into the future. Second, the Modoc sucker has demonstrated a quick positive response to management over the past 28 years since the species was listed; based on this, we anticipate being able to detect a species response to any changes in the management that may occur because of a plan amendment. Therefore, in consideration of Modoc sucker's positive response to management and our partners' commitment to continued management, as we describe below, we do not foresee that management practices will change and we anticipate that threats to the Modoc sucker will remain ameliorated into the foreseeable future. The word "range" in the significant portion of its range phrase refers to the range in which the species currently exists. For the purposes of this analysis, we first evaluate the status of the species throughout all its range, then consider whether the species is in danger of extinction or likely to become so in any significant portion of its range.

At the time of listing, the primary threats to Modoc sucker were threats from habitat

degradation and loss due to activities (such as overgrazing by cattle) that cause erosion and siltation, and eliminated natural barriers that resulted in loss of genetic integrity of the species due to hybridization with Sacramento suckers (*Catostomus occidentalis*). Predation by the nonnative brown trout (*Salmo trutta*) was also identified as a threat to Modoc sucker.

A thorough analysis and discussion of the current status review initiated with our 2012 90-day finding (77 FR 32922) is detailed in the Species Report (Service 2013, entire). The following sections provide a summary of the past, current, and potential future threats impacting the Modoc sucker. These threats include activities (such as overgrazing) that cause erosion and siltation (Factor A); elimination of natural barriers (Factor A); climate change and drought (Factor A); predation by nonnative species (Factors C); and hybridization and genetic introgression (infiltration of genes of another species) (Factor E).

Erosion and Cattle Grazing

The listing rule stated that activities (such as overgrazing) that cause a reduction in riparian vegetation, which then leads to stream erosion, siltation, and incision were a threat to the species. An increase in silt from eroding banks may fill in the preferred pool habitat of Modoc suckers and can cover gravel substrate used for spawning (50 FR 24526, June 11, 1985; Moyle 2002, p. 190). Sediment introduced into streams can adversely affect fish populations by inducing embryo mortality, affecting primary productivity, and reducing available habitat for macroinvertebrates that Modoc suckers feed upon (Moyle 2002, p. 191). However, land and resource management, as guided through regulations and policies, can effectively reduce or

control threats to Modoc sucker.

The National Forest Management Act (NFMA) and regulations and policies implementing the NFMA are the main regulatory mechanisms that guide land management on the Fremont-Winema and Modoc National Forests, which constitute about 51 percent of Modoc suckers' range. Since listing, the Fremont-Winema National Forests (USFS 1989, entire) and Modoc National Forest (USFS 1991, entire) have each included Modoc sucker and their habitat in their resource management plans. These plans are required by NFMA and the Federal Land Policy and Management Act of 1976 (FLPMA). The NFMA requires revision of the Plans every 15 years; however, plans may be amended or revised as needed. Management plans are required to be in effect at all times (in other words, if the revision does not occur, the previous plan remains in effect) and to be in compliance with various Federal regulations. The plans direct these national forests to maintain or increase the status of populations of federally endangered or threatened species and their habitats. In addition, these plans guide riparian management with a goal of restoring and maintaining aquatic and riparian ecosystems to their desired management potential (USFS 1989, Appendix p. 86; USFS 1991, pp. 4–26, Appendix pp. M-1–M-2).

Management direction for grazing on Forest-managed lands is provided through allotment management plans and permits, which stipulate various grazing strategies that will minimize adverse effects to the watershed and listed species. The allotment management plans outline grazing management goals that dictate rangeland management should maintain productive riparian habitat for threatened, endangered, and sensitive species (USFS 1995, p. 1). These grazing permits are valid for 10 years though operating instructions for these permits are

issued on an annual basis. Also, as Federal agencies, the Fremont-Winema and Modoc National Forests comply with the National Environmental Policy Act process when evaluating potential land-disturbing projects or changes in National Forest management.

Although State lands comprise only 1 percent of Modoc suckers' range, both California and Oregon provide habitat protection. In California on State lands, the California Fish and Game Code affords protection to stream habitats for all perennial, intermittent, and ephemeral rivers and streams. In Oregon, the Oregon Department of Land Conservation and Development requires local land use planning ordinances to protect natural resources, including riparian and wetland habitats.

The improved livestock grazing management practices in these management plans have greatly reduced impacts to Modoc sucker habitat from poor livestock grazing practices since the time of listing. Since listing, some of the Modoc sucker streams on public land have been fenced to exclude or actively manage livestock grazing for the benefit of Modoc sucker conservation (Reid 2008a, pp. 34–36, 85). Riparian fencing along occupied streams to exclude cattle during the past 25 years has resulted in continued improvements in riparian vegetative corridors, in-stream cover, and channel morphology.

In 2012, the Klamath Falls Fish and Wildlife Office completed habitat surveys in Washington Creek, Garden Gulch Creek, Coffee Mill Creek, Dutch Flat Creek, Turner Creek, Hulbert Creek, and Johnson Creek within the Ash Creek and Turner Creek sub-basins. Data collected indicated that the average percent bank erosion was low (less than 40 percent) at

Garden Gulch Creek, Coffee Mill Creek, Hulbert Creek, Washington Creek, and Johnson Creek. Bank erosion appeared moderate at the Dutch Flat Creek site (49 percent) and was highest at the Turner Creek site (75 percent). However, these two degraded reaches (Dutch Flat Creek and Turner Creek) combined amount to only 4.1 percent (1.76 mi/42.5 mi) of Modoc sucker's total occupied habitat. Bank erosion along these creeks has resulted in an introduction of silt, which can cover gravel substrate used for spawning by Modoc suckers (Moyle 2002, p. 191).

Land management practices employed on public and private lands since the early 1980s are expected to continue, or improve, thereby maintaining upward habitat trends as documented by survey data. On public lands, the resource management plans are required by NFMA and FLPMA and continue to be in effect until revised. Continued commitment to protection of resources, including Modoc sucker and riparian areas, in future revisions is expected. As an example, within the Fremont-Winema National Forest, Thomas Creek is a Priority Watershed under their Watershed Condition Framework, and the Forest is currently working on a watershed restoration action plan. The action plan will identify individual projects such as fish passage, instream restoration, and road treatments/closures. On State lands, the California Fish and Game Code affords protection to stream habitats for all perennial, intermittent, and ephemeral rivers and streams. The Oregon Department of Land Conservation and Development requires local land use planning ordinances to protect natural resources, including riparian and wetland habitats. However, there are no formalized agreements in place with private landowners that establish protection of Modoc sucker habitat, though continued outreach is expected to occur in the near future (e.g., through the Service's Partners for Fish and Wildlife Program).

Although the 2012 habitat surveys indicate that livestock grazing still results in stream bank erosion along streams occupied by Modoc suckers, these surveys and the 2008 and 2012 fish surveys indicate that livestock grazing management has improved greatly, and as a result of reduced impact to habitat, there has been no reduction in the distribution of Modoc suckers, and grazing results in erosion in only a small portion (4.1 percent) of the species' range.

Management plans that consider natural resources are required by law for all Federal lands on which Modoc sucker occurs. Management plans are required to be in effect at all times (in other words, if the revision does not occur, the previous plan remains in effect) and to be in compliance with various Federal regulations. Further, several organizations have partnered with private landowners to complete habitat restoration on the private land parcels to benefit fish passage and riparian habitat. Therefore, based on the best available information and expectation that current management practices will continue into the future, we conclude that livestock grazing and erosion does not constitute a substantial threat to the Modoc sucker now and is not expected to in the future.

Elimination of Natural Barriers

The listing rule assumed that natural passage barriers in streams occupied by Modoc suckers had been eliminated by human activities, allowing hybridization between the Modoc and Sacramento suckers (see *Hybridization and Genetic Introgression* below). The lack of barriers was also thought to provide exposure to nonnative predatory fishes (see *Predation by Nonnative Species* below). However, surveys completed since the time of listing reveal no evidence of historical natural barriers that would have acted as a physical barrier. This is particularly true

during higher springtime flows when Sacramento suckers make their upstream spawning migrations (Moyle 2002, p. 187). The source of this misunderstanding appears to have been a purely conjectural discussion by Moyle and Marciochi (1975, p. 559) that was subsequently accepted without validation, and Moyle makes no mention of it in his most recent account of Modoc sucker status (Moyle 2002, pp. 190–191). Since our current understanding is that the elimination of passage barriers did not occur, we conclude that elimination of passage barriers was incorrectly identified as a threat and is not a threat to Modoc sucker.

Predation by Nonnative Species

The listing rule identified predation by nonnative brown trout as a threat to Modoc suckers (50 FR 24526, June 11, 1985). Since the time of listing, additional predatory nonnative fish species have been recorded in streams containing Modoc suckers (Service 2009): largemouth bass, sunfish (green and bluegill), and brown bullheads. Two of the three known sub-basins with Modoc suckers contain introduced predatory fishes. The Ash Creek sub-basin contains brown trout and possibly largemouth bass in downstream reaches of Ash Creek. The Turner Creek sub-basin contains a number of warm-water predatory fish. The Goose Lake sub-basin does not contain any nonnative predatory fish.

The Ash Creek sub-basin contains brown trout, which have co-existed with Modoc suckers for over 70 years, but may suppress local native fish populations in small streams. There are no sources of largemouth bass upstream of Modoc sucker populations in the Ash Creek basin, although they may be present downstream in warmer, low-gradient reaches of Ash Creek

proper. A substantial eradication effort in Johnson Creek, within the Ash Creek sub-basin, in 2009 and 2010 removed most brown trout from occupied Modoc sucker habitat (Reid 2010, p. 2).

The Turner Creek sub-basin contains largemouth bass, sunfish (green and bluegill), and brown bullheads, of which only the bass are considered a significant predator on Modoc suckers. Bass do not appear to reproduce or establish stable populations in Turner Creek because the creek's cool-water habitat is generally unsuitable for supporting largemouth bass populations. Since 2005, the Service has supported a successful program of active management for nonnative fishes in the Turner Creek basin, targeting bass and sunfishes with selective angling and hand removal methods that do not adversely impact native fish populations (Reid 2008b, p. 1).

Redband trout, the only native potential predator of Modoc sucker, also occupies upper Thomas Creek, but there are no nonnative fishes (Scheerer *et al.* 2010, pp. 278, 281). The upper reaches of Thomas Creek occupied by Modoc suckers are unlikely to be invaded by nonnative fishes given the lack of upstream source populations and presence of a natural waterfall barrier in the lowest reach.

While Modoc suckers may be negatively impacted by introduced predatory fishes, such as brown trout and largemouth bass, they have persisted in the presence of nonnative predators, and populations have remained relatively stable in the Ash Creek and Turner Creek sub-basins prior to and since the time of listing. The separation of the three known basins containing Modoc suckers further reduces the probability that a new or existing nonnative predator would

impact all three basins simultaneously. In some instances, natural constraints limit the distribution of nonnative predators, such as cool-water habitat. In other cases, natural or manmade barriers limit potential introductions, as do policies and regulations within Oregon and California. State regulations and fish stocking policies, in both California and Oregon, prohibit transfer of fish from one water body to another. Regulations prohibiting transfer of fish between water bodies discourage the spread of predatory fish species such as brown trout and largemouth bass throughout the Modoc sucker's range. In addition, CDFW has discontinued stocking of the predatory brown trout into streams in the Pit River basin, and the Oregon Department of Fish and Wildlife (ODFW) does not stock brown trout in the Goose Lake sub-basin. Based on current policies and regulations, we do not expect additional predatory fish to be introduced into Modoc sucker habitat in the future. Therefore, based on the best available information, we conclude that introduced predators do not constitute a substantial threat to the Modoc sucker now or in the future.

Climate Change and Drought

Our analyses under the Endangered Species Act include consideration of ongoing and projected changes in climate. The terms “climate” and “climate change” are defined by the Intergovernmental Panel on Climate Change (IPCC). “Climate” refers to the mean and variability of different types of weather conditions over time, with 30 years being a typical period for such measurements, although shorter or longer periods also may be used (IPCC 2007, p. 78). The term “climate change” thus refers to a change in the mean or variability of one or more measures of climate (e.g., temperature or precipitation) that persists for an extended period,

typically decades or longer, whether the change is due to natural variability, human activity, or both (IPCC 2007, p. 78). Various types of changes in climate can have direct or indirect effects on species. These effects may be positive, neutral, or negative and they may change over time, depending on the species and other relevant considerations, such as the effects of interactions of climate with other variables (e.g., habitat fragmentation) (IPCC 2007, pp. 8–14, 18–19). In our analyses, we use our expert judgment to weigh relevant information, including uncertainty, in our consideration of various aspects of climate change.

The listing rule did not identify drought or climate change as threats to the continued existence of the Modoc sucker. However, the northwestern corner of the Great Basin is naturally subject to extended droughts, during which streams and even the larger water bodies such as Goose Lake have dried up (Laird 1971, pp. 57–58). Regional droughts have occurred every 10 to 20 years in the last century, and Goose Lake went dry as recently as 1992 and 2010 (Reid 2008a, pp. 43–44; R. Larson, KFFWO, personal communication). We have no records of how frequently Modoc sucker streams went dry. Some reaches of occupied streams have been observed to dry up (or flow goes subsurface through the gravel instead of over the surface) nearly every summer under current climatic conditions (Reid 2008, p. 42), indicating that headwater reaches did stop flowing. In extreme droughts, the suckers may have withdrawn to permanent main-stem streams, such as Rush, Ash, and Turner Creeks, and later recolonized the tributaries. Suckers also take refuge in natural spring-fed headwater reaches and in deeper, headwater pools that receive subsurface flow even when most of the stream channel is dry (Reid 2008, p. 43). Collections of Modoc suckers from Rush Creek and Thomas Creek near the end of the “dustbowl” drought (Hubbs 1934, p. 1; Reid 2008a, p. 79) and the continued persistence of

Modoc suckers throughout its known range through substantial local drought years since 1985 demonstrate the resiliency of Modoc sucker populations to drought.

Human-induced climate change could exacerbate low-flow conditions in Modoc sucker habitat during future droughts. A warming trend in the mountains of western North America is expected to decrease snowpack, hasten spring runoff, reduce summer stream flows, and increase summer water temperatures (Poff *et al.* 2002, p. 11; Koopman *et al.* 2009, p. 3; PRBO Conservation Science 2011, p. 15). Lower flows as a result of smaller snowpack could reduce sucker habitat, which might adversely affect Modoc sucker reproduction and survival. Warmer water temperatures could lead to physiological stress and could also benefit nonnative fishes that prey on or compete with Modoc suckers. Increases in the number and size of forest fires could also result from climate change (Westerling *et al.* 2006, p. 940) and could adversely affect watershed function resulting in faster runoff, lower base flows during the summer and fall, and increased sedimentation rates. It is possible that lower flows may result in increased groundwater withdrawal for agricultural purposes and thus reduced water availability in certain stream reaches occupied by Modoc suckers. While these are all possible scenarios, we have no data on which to predict the likelihood or magnitude of these outcomes.

In summary, droughts may be a concern because they could likely constrict the amount of available habitat and reduce access to spawning habitat. However, the species has not declined in distribution since the time of listing in 1985, even though the region where it exists has experienced several pronounced droughts since listing when total annual precipitation was approximately half of the long-term average (Western Regional Climate Center,

<http://www.wrcc.dri.edu/cgi-bin/cliMONtpre.pl?ca0161>, accessed 23 January 2013). And, although we cannot predict future climatic conditions accurately, the persistence of Modoc sucker across its range through the substantial droughts of the last century suggests that the species is resilient to drought and reduced water availability. Because we are unable at this time to predict how climate change will exacerbate the effects of drought within the Modoc sucker's range, we cannot make meaningful projections on how the species may react to climate change or how its habitat may be affected. Therefore, based on the best available information, we conclude that droughts and climate change, while likely affecting Modoc sucker populations, do not constitute substantial threats to Modoc sucker now and are not expected to in the future.

Hybridization and Genetic Introgression

The listing rule identified hybridization with the Sacramento sucker as a threat to the Modoc sucker. Hybridization can be cause for concern in a species with restricted distribution, particularly when a closely related, nonnative species is introduced into its range, which can lead to loss of genetic integrity or even extinction (Rhymer and Simberloff 1996, p. 83). At the time of listing, it was assumed that hybridization between Modoc suckers and Sacramento suckers had been prevented in the past by the presence of natural physical barriers, but that the loss of these stream barriers was allowing interaction and hybridization between the two species (see *Elimination of Natural Barriers* above). However, the assumption that extensive hybridization was occurring was based solely on the two species occurring in the same streams, and the identification of a few specimens exhibiting what were thought to be intermediate morphological characters. At the time of listing in 1985, genetic and complete morphological information to

assess this assumption was not available.

The morphological evidence for hybridization in the listing rule was based on a limited understanding of morphological variation in Modoc suckers and Sacramento suckers, derived from the small number of specimens available at that time. The actual number of specimens identified as apparent hybrids by earlier authors was very small, and many of these specimens came from streams without established Modoc sucker populations. Subsequent evaluation of variability in the two species was based on a larger number of specimens. It showed that the overlapping characteristics (primarily lateral line and dorsal ray counts) that had been interpreted by earlier authors as evidence of hybridization, are actually part of the natural meristic (involving counts of body parts such as fins and scales) range for the two species. As a result, this variability is no longer thought to be the result of genetic introgression between the two species (Kettrated 2001, pp. 52–53).

We initiated a study in 1999 to examine the genetics of suckers in the Pit River basin and determine the extent and role of hybridization between the Modoc and Sacramento suckers using both nuclear and mitochondrial genes (Palmerston *et al.* 2001, p. 2; Wagman and Markle 2000, p. 2; Dowling 2005, p. 3; Topinka 2006, p. 50). The two species are genetically similar, suggesting that they are relatively recently differentiated or have a history of introgression throughout their range that has obscured their differences (Dowling 2005, p. 9; Topinka 2006, p. 65). Although the available evidence cannot differentiate between the two hypotheses, the genetic similarity in all three sub-basins, including those populations shown to be free of introgression based on species-specific genetic markers (Topinka 2006, pp. 64–65), suggests that

introgression has occurred on a broad temporal and geographic scale and is not a localized or recent phenomenon. Consequently, the genetic data suggest that introgression is natural and is not caused or measurably affected by human activities.

In a later study, Topinka (2006, p. 50) analyzed nuclear DNA from each of the two species and identified species-specific markers indicating low levels of introgression by Sacramento sucker alleles into most Modoc sucker populations. However, there was no evidence of first generation hybrids, and it is not clear whether introgression occurred due to local hybridization or through immigration by individual Modoc suckers carrying Sacramento alleles from other areas where hybridization had occurred.

Scientists who have studied suckers in western North America consider that, throughout their evolutionary history, hybridization among sympatric native fishes is not unusual and may provide an adaptive advantage (Dowling and Secor 1997, pp. 612–613; Dowling 2005, p. 10; Topinka 2006, p. 73; Tranah and May 2006, p. 313). Further, despite any hybridization that has occurred in the past, the Modoc sucker maintains its morphological and ecological distinctiveness, even in populations showing low levels of introgression, and is clearly distinguishable in its morphological characteristics from the Sacramento sucker (Kettrattad 2001, p. 3). The low levels of observed introgression by Sacramento suckers in streams dominated by Modoc suckers, even when there are no physical barriers between the two species, suggests that either ecological differences, selective pressures, or other natural reproductive-isolating mechanisms are sufficient to maintain the integrity of the species, even after more than a century of habitat alteration by human activities. Therefore, given the levels of observed introgression in

streams dominated by Modoc suckers, the lack of evidence of first-generation hybrids, the fact that Modoc suckers and Sacramento suckers are naturally sympatric, and the continued ecological and morphological integrity of Modoc sucker populations, we conclude that hybridization and genetic introgression do not constitute threats to the Modoc sucker now and are not expected to in the future.

Overall Summary of Factors Affecting Modoc Sucker

Threats to the Modoc sucker that were considered in the 1985 listing rule have been reduced or ameliorated or are no longer considered to have been actual threats at the time of listing. Further, climate change and drought are not considered substantial threats. Habitat conditions on both public and private lands have benefited since the time of listing as a result of improved livestock grazing management practices and construction of fencing to exclude cattle from riparian areas on several of the streams occupied by Modoc suckers. We expect habitat conditions to remain stable or improve. Although recent habitat surveys indicate erosion continues to be a problem along lower Turner Creek and in Dutch Flat Creek, these areas represent 4.1 percent (1.76 mi/42.5 mi) of Modoc sucker's total occupied habitat. Habitat threats are addressed through multiple Federal and State regulations, including NFMA, California and Oregon State water regulations, and California Fish and Game Code. Therefore, these impacts are not considered a substantial threat to the species.

Modoc suckers have coexisted with brown trout for more than 70 years, and the overlap in distribution of largemouth bass and Modoc suckers is limited because bass are warm water

fish that occur in lower-elevation reaches downstream of many of the reaches occupied by Modoc sucker, and reservoir outflows have been screened to reduce the risk of bass being flushed into streams occupied by Modoc sucker. Further, State regulations in both California and Oregon prohibit transfer of fish from one water body to another. Thus, introduced predators are not a significant risk to Modoc sucker populations. A greater understanding of the genetic relationships and natural gene flow between the Modoc suckers and Sacramento suckers has reduced concerns over hybridization between the two naturally sympatric species.

Although none of the factors discussed above is having a major impact on Modoc sucker, a combination of factors could potentially have a much greater effect. For example, effects of erosion on habitat resulting from poor livestock grazing management practices could worsen during periods of prolonged, severe drought when some water sources may dry up, resulting in greater pressure on the remaining available water sources, which would likely degrade Modoc sucker habitat. However, the impacts of livestock grazing on Modoc sucker habitat has been greatly reduced or eliminated by improved grazing management practices and management plans, which are not expected to change. Although the types, magnitude, or extent of cumulative impacts are difficult to predict, we are not aware of any combination of factors that has not already or would not be addressed through ongoing conservation measures. Based on this assessment of factors potentially impacting the species, we consider Modoc sucker to have no substantial threats now or in the future (see Summary of Factors Affecting the Species section of the Species Report (Service 2013, pp. 23–57).

Finding

An assessment of the need for a species' protection under the Act is based on whether a species is in danger of extinction or likely to become so because of any of five factors: (A) The present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. As required by section 4(a)(1) of the Act, we conducted a review of the status of this species and assessed the five factors to evaluate whether Modoc sucker is endangered or threatened throughout all of its range. We examined the best scientific and commercial information available regarding the past, present, and future threats faced by the species. We reviewed information presented in the 2011 petition, information available in our files and gathered through our 90-day finding in response to this petition, and other available published and unpublished information. We also consulted with species experts and land management staff with the USFS, CDFW, and ODFW, who are actively managing for the conservation of Modoc sucker.

In considering what factors might constitute threats, we must look beyond the mere exposure of the species to the factor to determine whether the exposure causes actual impacts to the species. If there is exposure to a factor, but no response, or only a positive response, that factor is not a threat. If there is exposure and the species responds negatively, the factor may be a threat and we then attempt to determine how significant the threat is. If the threat is significant, it may drive, or contribute to, the risk of extinction of the species such that the species warrants listing as endangered or threatened as those terms are defined by the Act. This determination

does not necessarily require empirical proof of a threat. The combination of exposure and some corroborating evidence of how the species is likely impacted could suffice. The mere identification of factors that could impact a species negatively is not sufficient to compel a finding that listing is appropriate; we require evidence that these factors are operative threats that act on the species to the point that the species meets the definition of an endangered species or threatened species under the Act.

Significant impacts at the time of listing that could have resulted in the extirpation of all or parts of populations have been eliminated or reduced since listing. We conclude that the previously recognized impacts to Modoc sucker from the present or threatened destruction, modification, or curtailment of its habitat or range (specifically, erosion due to poor cattle grazing management) (Factor A); elimination of natural barriers (Factor A); predation by nonnative species (Factor C); and hybridization or genetic introgression (specifically, from Sacramento sucker) (Factor E) do not rise to a level of significance, such that the species is in danger of extinction now or in the foreseeable future.

As a result of the discovery of five populations not known at the time of listing and the documentation of the genetic integrity of populations considered in the 1985 listing rule to have been lost due to hybridization, the known range of the Modoc sucker has increased and it currently occupies its entire known historical range. Additionally, the distribution of occupied stream habitat for populations known at the time of listing has remained stable or expanded slightly since the time of listing, even though the region has experienced several droughts during this time period. Additionally, the relevant recovery objectives outlined in the Recovery Plan for

the Modoc sucker have been met, indicating sustainable populations exist throughout the species' range. Finally, an assessment of factors that may be impacting the species did not reveal any significant threats to the species, now or in the future. We have carefully assessed the best scientific and commercial data available and determined that Modoc sucker is no longer in danger of extinction throughout all of its range, nor is it likely to become so in the future.

Significant Portion of the Range

Having examined the status of Modoc sucker throughout all its range, we next examine whether the species is in danger of extinction in a significant portion of its range. The range of a species can theoretically be divided into portions in an infinite number of ways. However, there is no purpose in analyzing portions of the range that have no reasonable potential to be significant or in analyzing portions of the range in which there is no reasonable potential for the species to be endangered or threatened. To identify only those portions that warrant further consideration, we determine whether there is substantial information indicating that: (1) The portions may be "significant" and (2) the species may be in danger of extinction there or likely to become so within the foreseeable future. Depending on the biology of the species, its range, and the threats it faces, it might be more efficient for us to address the significance question first or the status question first. Thus, if we determine that a portion of the range is not "significant," we do not need to determine whether the species is endangered or threatened there; if we determine that the species is not endangered or threatened in a portion of its range, we do not need to determine if that portion is "significant." In practice, a key part of the determination that a species is in danger of extinction in a significant portion of its range is whether the threats are

geographically concentrated in some way. If the threats to the species are essentially uniform throughout its range, no portion is likely to warrant further consideration. Moreover, if any concentration of threats to the species occurs only in portions of the species' range that clearly would not meet the biologically based definition of "significant," such portions will not warrant further consideration.

We consider the "range" of Modoc sucker to include an estimated 42.5 miles (68.4 kilometers) of occupied habitat in 12 streams in the Turner Creek, Ash Creek, and Goose Lake sub-basins of the Pit River. This amount has improved greatly since the time of listing, when its known distribution was limited to an estimated 12.9 miles (20.8 kilometers) of occupied habitat in seven streams in the Turner Creek and Ash Creek sub-basins. This distribution represents its entire known historical range, with the exception of Willow Creek within the Ash Creek sub-basin. Previous reports of Modoc suckers in Willow Creek are based on limited and unverifiable reports (Reid 2009, p. 14), and their present existence in Willow Creek remains questionable (Reid 2008a, p. 25). Therefore, we consider the confirmed historical range to be occupied.

We considered whether any portions of the Modoc sucker range might be both significant and in danger of extinction or likely to become so in the foreseeable future. One way to identify portions would be to identify natural divisions within the range that might be of biological or conservation importance. Modoc sucker inhabit three sub-basins of the Pit River, one of which, the Goose Lake sub-basin, is disjoined from the other two sub-basins (Turner Creek and Ash Creek sub-basins). These sub-basins have the potential to be significant areas to the species due to potential geographic isolation. Although the sub-basins have the potential to be significant,

the populations of the species within the sub-basins are not in danger of extinction or likely to become so within the foreseeable future due to lack of significant threats. Another way to identify portions would be to consider whether any threats are geographically concentrated in some way that would indicate the species could be threatened or endangered in that area. As noted above, erosion due to poor grazing management still occurs within approximately 4.1 percent of the Modoc sucker range, and has the potential to adversely affect Modoc sucker in those areas. These two sites are within different sub-basins and, both collectively and per sub-basin, represent a very small fraction of the Modoc sucker's range. These areas, individually or collectively, are therefore unlikely to constitute a significant portion of the species' range. No other natural divisions occur, and no other potential remaining threats have been identified. Therefore, it is our conclusion, based on our evaluation of the current and potential threats to Modoc sucker, that these threats are neither sufficiently concentrated nor of sufficient magnitude to indicate the species is in danger of extinction or likely to become so in the foreseeable future in any of the areas that support the species, and thus, it is likely to persist throughout its historical range.

We have carefully assessed the best scientific and commercial data available and determined that the Modoc sucker is no longer in danger of extinction throughout all or significant portions of its range, nor is it likely to become so in the future. As a consequence of this determination, we are proposing to remove this species from the list of endangered and threatened species under the Act.

Effects of This Rule

If this proposed rule is made final, it would revise 50 CFR 17.11(h) to remove the Modoc sucker from the List of Endangered and Threatened Wildlife and would revise 50 CFR 17.95(e) to remove designated critical habitat for the species. The prohibitions and conservation measures provided by the Act, particularly through sections 7 and 9, would no longer apply to this species. Federal agencies would no longer be required to consult with the Service under section 7 of the Act in the event that activities they authorize, fund, or carry out may affect Modoc sucker.

Peer Review

In accordance with our joint policy on peer review published in the **Federal Register** on July 1, 1994 (50 FR 34270), we will seek the expert opinions of at least three appropriate and independent specialists regarding this proposed rule and the draft post-delisting monitoring (PDM) plan. A thorough review of information that we relied on in preparing this proposed rule—including information on taxonomy, life-history, ecology, population distribution and abundance, and potential threats—is presented in the Modoc Sucker Species Report (Service 2013) available at www.regulations.gov (Docket Number FWS–R8–ES–2013–0133). The purpose of peer review is to ensure that decisions are based on scientifically sound data, assumptions, and analyses. A peer review panel will conduct an assessment of the proposed rule, and the specific assumptions and conclusions regarding the proposed delisting. This assessment will be completed during the public comment period.

We will consider all comments and information we receive during the comment period

on this proposed rule as we prepare the final determination. Accordingly, the final decision may differ from this proposal.

Post-Delisting Monitoring Plan

Section 4(g)(1) of the Act requires us, in cooperation with the States, to implement a monitoring program for not less than 5 years for all species that have been recovered and delisted (50 CFR 17.11, 17.12). The purpose of this post-delisting monitoring (PDM) is to verify that a species remains secure from risk of extinction after it has been removed from the protections of the Act. The PDM is designed to detect the failure of any delisted species to sustain itself without the protective measures provided by the Act. If, at any time during the monitoring period, data indicate that protective status under the Act should be reinstated, we can initiate listing procedures, including, if appropriate, emergency listing under section 4(b)(7) of the Act. Section 4(g) of the Act explicitly requires us to cooperate with the States in development and implementation of PDM programs, but we remain responsible for compliance with section 4(g) and, therefore, must remain actively engaged in all phases of PDM. We also seek active participation of other entities that are expected to assume responsibilities for the species' conservation post-delisting.

Post-Delisting Monitoring Plan Overview

The Service has developed a draft PDM plan for the Modoc sucker. The PDM plan is designed to verify that Modoc sucker remains secure from risk of extinction after removal from

the Federal List of Endangered and Threatened Wildlife by detecting changes in its status and habitat throughout its known range.

Although the Act has a minimum PDM requirement of 5 years, we will monitor Modoc sucker for a 10-year monitoring period to account for environmental variability (for example, drought) that may affect the condition of habitat and to provide for a sufficient number of surveys to document any changes in the abundance of the species. Based on the life history of Modoc suckers, in which individuals mature at age 2+ years, a complete survey of previously surveyed areas should be conducted every 2 years within the 10-year monitoring period. This will allow us to assess changes in abundance or the extent of the species' range over time; changes in the level of recruitment of reproducing fish into the population; and any potential changes in threats to the species. However, if a decline in abundance is observed or a substantial new threat arises, post-delisting monitoring may be extended or modified as described below.

A multi-state occupancy approach (MacKenzie et al. 2009, entire) will be used to estimate the proportion of sites occupied, change in site occupancy, and change in abundance of Modoc suckers. Surveys for Modoc suckers will be completed following a modified version of a sampling protocol developed for Modoc sucker (Reid 2008b) that is consistent with the approach used in surveys conducted since 2008. This approach will allow for monitoring population status over time as it permits the estimation of the proportion of sites (within a stream and among all streams) that are occupied and that are in each state of abundance (low and high). During occupancy and abundance surveys, we will also monitor threats and recruitment. To measure recruitment, we will estimate the size of individuals to the nearest centimeter. Examination of

fish sizes will allow a determination to be made if recruitment is occurring over time. Ideally, surveys will result in diverse size classes of fish, indicating recruitment is occurring. Threats, both biotic (for example, nonnative predatory fish) and abiotic (for example, excessive sedimentation) will also be assessed during surveys (both day and night). Prior to completing surveys, sites (pools) within streams will be landmarked and georeferenced to allow relocation for subsequent surveys.

After each complete survey (conducted once every 2 years), the Service and its partners will compare the results with those from previous surveys and consider the implication of any observed reductions in abundance or threats to the species. Within 1 year of the end of the PDM period, the Service will conduct a final internal review and prepare (or contract with an outside entity) a final report summarizing the results of monitoring. This report will include: (1) a summary of the results from the surveys of Modoc sucker occupancy, states of abundance, recruitment, and change in distribution; and (2) recommendations for any actions and plans for the future. The final report will include a discussion of whether monitoring should continue beyond the 10-year period for any reason.

With this notice, we are soliciting public comments and peer review on the draft PDM Plan including its objectives and procedures (see **Public Comments Solicited**). All comments on the draft PDM plan from the public and peer reviewers will be considered and incorporated into the final PDM plan as appropriate. The draft PDM plan will be posted on our Endangered Species Program's national web page (<http://endangered.fws.gov>) and the Klamath Falls Fish and Wildlife Office web page (<http://fws.gov/klamathfallsfwo>) and on the Federal eRulemaking

Portal at <http://www.regulations.gov>. We anticipate finalizing this plan, considering all public and peer review comments, prior to making a final determination on the proposed delisting rule.

Required Determinations

Clarity of the Rule

We are required by Executive Orders 12866 and 12988 and by the Presidential Memorandum of June 1, 1998, to write all rules in plain language. This means that each rule we publish must:

- (a) Be logically organized;
- (b) Use the active voice to address readers directly;
- (c) Use clear language rather than jargon;
- (d) Be divided into short sections and sentences; and
- (e) Use lists and tables wherever possible.

If you feel that we have not met these requirements, send us comments by one of the methods listed in **ADDRESSES**. To better help us revise the rule, your comments should be as specific as possible. For example, you should tell us the names of the sections or paragraphs that are unclearly written, which sections or sentences are too long, the sections where you feel lists or tables would be useful, etc.

National Environmental Policy Act

We determined we do not need to prepare an Environmental Assessment or an Environmental Impact Statement, as defined under the authority of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*), in connection with regulations adopted pursuant to section 4(a) of the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

References Cited

A complete list of all references cited in this proposed rule is available on the Internet at <http://www.regulations.gov> under Docket No. FWS–R8–ES–2013–0133 or upon request from the Field Supervisor, Klamath Falls Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

Author

The primary author of this proposed rule is the Pacific Southwest Regional Office in Sacramento, California, in coordination with the Klamath Falls Fish and Wildlife Office in Klamath Falls, Oregon (see **FOR FURTHER INFORMATION CONTACT**).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping

requirements, Transportation.

Proposed Regulation Promulgation

Accordingly, we propose to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS

1. The authority citation for part 17 continues to read as follows:

AUTHORITY: 16 U.S.C. 1361–1407; 1531–1544; 4201–4245, unless otherwise noted.

§ 17.11 [Amended]

2. Amend § 17.11(h) by removing the entry for “Sucker, Modoc” under “Fishes” in the List of Endangered and Threatened Wildlife.

§ 17.95 [Amended]

3. Amend § 17.95(e) by removing the entry for “Modoc Sucker (*Catostomus microps*)”.

Dated: December 30, 2013

Stephen Guertin,
Acting Director, Fish and Wildlife Service.

Billing Code 4310–55

[FR Doc. 2014-01526 Filed 02/12/2014 at 8:45 am; Publication Date:
02/13/2014]